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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/990,874	11/21/2001	Wing L. Sung	07121.0003U1	2196

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999 PEACHTREE STREET  
ATLANTA, GA 30309-3915



EXAMINER

RAO, MANJUNATH N

ART UNIT	PAPER NUMBER
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1652

DATE MAILED: 07/15/2003

11

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/990,874

Applicant(s)

SUNG, WING L.

Examiner

Manjunath N. Rao, Ph.D.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-66 is/are pending in the application.
- 4a) Of the above claim(s) 3-46 and 51-66 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,47,48 and 50 is/are rejected.
- 7) ☒ Claim(s) 49 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: *Raw sequence listing*.

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### **DETAILED ACTION**

Claims 1-66 are still at issue and are present for examination. Claims 1, 2, 47-50 are now under consideration. Claims 3-46 and 51-66 remain withdrawn from consideration as being drawn to non-elected invention.

#### ***Election/Restrictions***

Applicant's election with traverse of species No. 21, (i.e. a variant xylanase enzyme consisting of the following modification TrX-H-11D-ML-75A105H-118C-125A129E-144R161R in Paper No. 10 is acknowledged. The traversal is on the ground(s) that coexamination of all of all species does not cause undue on the Examiner and that all the claims relate to a single invention. Examiner respectfully disagrees with the applicants. Applicants are claiming a large number of mutant enzymes which have different structure and different extent of the function even though, overall, the enzymes may function as xylanases. Furthermore due to the large number of amino acid positions (both individual and groups of amino acids), the search of more than one species causes undue burden on the Examiner. The searches are not coextensive and involves search of the large amount of non-patent literature as well.

The requirement is still deemed proper and is therefore made FINAL.

Contrary to applicants conclusion, Examiner finds that only claim 49 reads on the elected species, TrX-H-11D-ML-75A105H-118C-125A129E-144R161R .

#### ***Drawings***

Drawings submitted in this application are accepted by the Examiner for examination purposes only.

***Sequence compliance***

Applicant is required to comply with the sequence rules by inserting the sequence identification numbers of all sequences recited within the claims and/or specification. It is particularly noted that the total number of sequences filed in the paper copy (total number 53) and in the computer disk (total number 54) does not match. Neither figure 1 nor its description recite SEQ ID NO depicted in the figure. See particularly 37 CFR 1.821(d).

***Claim Objections***

Claim 49 is objected to because of the following informalities: Claim 49 is drawn to several non-elected species. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 47-48 provides for the use of the modified xylanase of claim 1, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 47-48 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for

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example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 47-48 are rejected under 35 U.S.C. 102(e) as being anticipated by NRC of Canada (NRC) et al. (WO 01/92487 A2, Dec 6, 2001, filed in English, designating US, filed on 5-31-2001 with priority benefit to US 60/213,803, 5-31-2000). This rejection is based upon the public availability of a printed publication. Claims 1-2, 47-48 of the instant application are drawn to a modified xylanase comprising at least one substituted amino acid residue at a position selected from the group consisting of amino acid 11, 116, 118, 144 and 161, said position determined from sequence alignment of said modified xylanase with *T.reesei* xylanase amino acid sequence defined in SEQ ID NO:16, wherein the modified xylanase exhibits improved characteristics corresponding to native xylanase and is used for an industrial process such as paper pulp manufacture. NRC discloses an identical xylanase which encompasses the modification at position 161, said position determined from sequence alignment of said modified xylanase with *T.reesei* xylanase amino acid sequence defined in SEQ ID NO:16, wherein the modified xylanase exhibits improved characteristics (see claims 1 and 2) and its use in a industrial process

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such as paper pulp manufacture. Thus NRC anticipate claims 1-2, 47-48 of this application as written.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 50 is rejected under 35 U.S.C. 102(a) Kimura et al. (GenBank Accession No. Q9HFA4, 3-1-01) or under 35 U.S.C. 102(b) as being anticipated by Yoshino et al. (GenBank Accession No. Q12579, 11-1-1996). This rejection is based upon the public availability of a printed publication. Claim 50 of the instant application drawn to a modified xylanase comprising an amino acid residue at a position from the group consisting of amino acid 11, 116, 118, 144 and 161, said position determined from sequence alignment of said modified xylanase with T.reesei xylanase II amino acid sequence in SEQ ID NO:16, said amino acid not found at said position in said T.reesei xylanase II amino acid sequence defined in SEQ ID NO:16, i.e., the claim is drawn to any xylanase enzyme in which the corresponding amino acids at any one of the positions 11, 116, 118, 144 and 161 in SEQ ID NO:16 is changed or different from the amino acid found in those positions in SEQ ID NO:16.

Kimura et al. disclose such a mutant xylanase in which the amino acids corresponding to positions 116 and 118 in SEQ ID NO:16 are different (see sequence alignment) thus anticipating claim 50 as written. Similarly, Yoshino et al. disclose such a mutant xylanase in which the

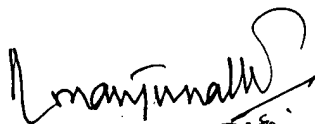
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amino acids corresponding to positions 144 and 161 in SEQ ID NO:16 are different (see sequence alignment) thus anticipating claim 50 as written.

***Conclusion***

Claim 49 is objected to as being drawn to non-elected species, but would be allowable if rewritten in independent form and drawn to the specific elected species.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manjunath Rao whose telephone number is (703) 306-5681. The Examiner can normally be reached on M-F from 7:30 a.m. to 4:00 p.m. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, P.Achutamurthy, can be reached on (703) 308-3804. The fax number for Official Papers to Technology Center 1600 is (703) 305-3014. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

  
MANJUNATH RAO  
PATENT EXAMINER

Manjunath N. Rao. Ph.D.  
July 11, 2003